

## REMARKS

### Section 112 Objections

The Office Action objects that the specification as filed does not support the negative limitation “wherein the compound semiconductors A and B do not have equal and opposite mismatches such that the average lattice constant matches that of the group III nitride compound semiconductor.” This language has been deleted from independent claims 1 and 12.

### Section 103 Objections

The Office Action rejects claims 1-14 under 35 U.S.C. 103(a) as unpatentable over Nakamura in view of Tischler ‘152 (U.S. Pat. No. 5,679,152) and Tischler “App. Phys.” (46 App. Phys. Lett. 294). As the Office Action points out, Nakamura does not teach a multilayer buffer as recited in independent claims 1 and 12 of the present application. Applicants have amended independent claims 1 and 12 to distinguish the present invention from the multi-layered buffer described in the Tischler references.

Tischler ‘152 teaches use of alternating layers A and B, where A and B are layers composed of AlN, InN, and GaN, and alloys of SiC with one or more of AlN, InN, and GaN. Tischler ‘152 at col. 4, lines 40-43. Tischler (App. Phys.) at p. 294, col. 2, lines 12-21, describes a “superlattice composed of two materials having equal but opposite lattice mismatches, such that the average lattice constant matches that of GaAs.” Tischler (App. Phys.) proposes the following materials system pairs as meeting this requirement:  $\text{GaAs}_{1-x}\text{P}_x - \text{In}_y\text{Ga}_{1-y}\text{As}$  (when  $x = 2y$ ;  $\text{GaAsP} - \text{GaAsSb}$ ;  $\text{GaAsP} - \text{InGaAsSb}$ ; and  $\text{Ga}_{0.52+x}\text{In}_{0.48-x}\text{P} - \text{Ga}_{0.52-x}\text{In}_{0.48+x}\text{P}$ . See Tischler (App. Phys.) at 294, col. 2, lines 12-21.

The present invention as now claimed in independent claims 1 and 12 requires GaAlN or GaInN. Neither of these compositions is taught or suggested by Tischler '152 or Tischler "App. Phys." as a component of a multi-layer buffer system.

Therefore, the amended claims 1 and 12 distinguish over the cited reference and are believed to be in condition for allowance.


### CONCLUSION

Applicants have explained the differences between the claims as amended and the cited references, and believe the amended claims are now in condition for allowance.

If any further questions should arise prior to a Notice of Allowance, the Examiner is respectfully invited to contact the attorney at the number set forth below.

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Respectfully submitted,

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